

# RPM News

## ▲ Remedial Project Manager News ▲

"COMMUNICATING NAVY INSTALLATION RESTORATION PROGRAM NEWS AND INFORMATION AMONG ALL PARTICIPANTS"

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## Naval Training Center helps ready Great Lakes Bird Sanctuary during International Coastal Cleanup Day



*Figure 1. During a mid-morning break, Brad Semel provided the volunteers insight into the area ecosystem and the efforts being made to improve the habitat.*

The 2002 International Coastal Cleanup Day event at Great Lakes drew 39 volunteers, including 24 students and Professor Rick Schmude from the College of Lake County (Figure 1). The students, who enjoyed the beautiful day outdoors, were also provided additional class points for their assistance.

Mr. Donald Dann, an ornithologist from Highland Park, and Mr. Brad Semel of the Illinois Department of Natural Resources (DNR), have been the big event coordinators and supporters of the Great Lakes Bird Sanctuary. Mr. Danny Diaz, a Waukegan resident, has helped in every cleanup event held.

Last year the Naval Training Center Environmental Officer and the Illinois DNR teamed together to provide a nesting area for two endangered species of birds. The Common Tern and the Forrester's Tern. These birds nest in the sand and, because they had shown an interest in the inner harbor area of Great Lakes (the only area known to be of interest to these birds in Illinois), it was decided to create a space for them to nest (Figure

2). Only about two acres in size, the area is very transitional. While it was easily reached on foot last year, a boat was the only way to get to the area this year. At times, the entire sanctuary area could be submerged.

In the Spring of this year, a few volunteers came to Great Lakes to clear the sanctuary area for the potential nesting of these birds. It was a complete success. Soft, feathery nests in the sand of the Great Lakes Sanctuary provided a home to endangered Terns who produced nearly 30 fledglings, as counted by area ornithologists.

Volunteers cleared undesirable vegetation and piled it up to dry out and be burned at a later time. They shoveled sand into buckets at lower areas of the coastline and carried it to the higher, sanctuary area, to enhance bird nesting sites.

*For more information, contact:*

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*Figure 2. Baby terns.*

## RPM NEWS

Remedial Project Manager News

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Using Appropriated Funds

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# Low Impact Development (LID) Pilot Project Washington Navy Yard Success

EFA Chesapeake



*Figure 1. Bioretention in parking areas of Willard Park and the Dental Clinic.*

Every time it rains, pollutants are being washed from urban areas directly into local receiving bodies of water via storm water runoff. To manage this urban runoff, the Naval District Washington (NDW) recently completed a series of urban-retrofit pilot projects called Low Impact Development (LID).

This demonstration project, under the direction of the Atlantic Division (LANTDIV), was initiated to maintain and restore the water quality of the Anacostia and Potomac Rivers as well as the Chesapeake Bay. The action was the result of a lawsuit filed by the former Sierra Club Legal Defense Fund. LID

techniques were applied to parking lots, roadways, and open spaces throughout the NDW facilities aiming to prevent future pollution and encourage environmentally conscious site design in order to comply with various conservation standards.

In 1996, the Sierra Club Legal Defense Fund, currently known as Earthjustice, filed a lawsuit against the Navy for violating the Clean Water Act and the Resource Conservation and Recovery Act at the Washington Navy Yard. The Navy settled the case in 1998. During mediation, the Navy agreed to incorporate innovative methods to control urban storm water runoff into future projects at the Washington Navy Yard. LID is an example of such an effort.

LID is the use of storm water management controls to filter pollutants and control the flow of runoff waters into nearby bodies of water and wetlands. Now, more than ten different types of LID techniques are in use at NDW in



*Figure 2. Small paving inlets.*



the parking areas of Willard Park and the Dental Clinic. These parking lots have been retrofitted, or modified, with the main component of LID - bioretention (Figure 1).

Simply defined, bioretention is a landscaping technique that uses specialized soils and plants to filter pollutants, reduce runoff volume, and control the timing of runoff. For example, bioretention can be seen in the form of long landscaped strips between parking aisles (Figure 5), planter islands near buildings (Figure 4), rain barrels connected to building downspouts, small paving inlets (Figure 2), and street tree boxes (Figure 3). Street tree boxes filter pollutants, in addition to retaining storm water runoff, to help trees survive during times of drought.

Another LID technology used at the NDW sites is the permeable pavers - individual pavement blocks with gravel filled gaps that allow storm water to diffuse into a stone filled water storage area below the pavement. Permeable pavers are effective in slowing the rate of storm water flow and minimize flooding. The practice of soil amendment produces similar results as the permeable pavers. The addition of organic material, such as mulch, topsoil, and compost enhance the water retaining capacity of the soil. This, in turn,



*Figure 3. Street tree boxes filter pollutants and help trees survive during times of drought.*



*Figure 4. Planter islands near buildings.*

reduces the rate of storm water runoff, filters pollutants, and conserves excess water for landscaping.

"LID will capture and treat the first flush of storm water runoff of a rain event where most of the contaminants occur," environmental engineer Lance Laughmiller said. "The use of LID as a different storm water management process is the only practical way to reach new surface water quality restrictions for both contaminate loading and run off volume."

Lance, involved in the project through LANTDIV, works with the Installation Renovation Division. LANTDIV was also responsible for the direction of the construction contractor at NDW implementing this project for NDW Environmental. The work was done through EFA Chesapeake's ROICC NDW with Lance as the Remedial Project Manager.

Overall, the LID retrofitting cost was in excess of \$180,000. Since the project was a demonstration, the cost of a normal retrofitting development project would be less. The finished product also verified there will be no loss of parking spaces. Now that the project is completed, there will be very little maintenance needed aside from normal grounds maintenance at the facility.

"We have worked with this regional command and the NAVFAC Criteria Office to bring in LID training and to try to spread the knowledge throughout the command and integrate it into our process from planning on," Lance said.

Current and future management plans for development in NDW are beginning to implement LID practices. Project managers are encouraged to create a master plan for their site, which will then be tailored to incorporate LID techniques. Presently, plans have already been designed for LID projects at the US Naval Observatory, Anacostia Annex, and the Potomac Annex. According to Lance, the pilot project was successful and will serve as an educational example for future storm water runoff control.

*For more information, contact:*

*LANTDIV (C151)  
1510 Gilbert Street  
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*Figure 5. Long landscaped strips between parking aisles.*

# Field Demonstration Using Vacuum Truck For Lead Contaminated Soil

Former Trap and Skeet Ranges in Barbers Point, Oahu, Hawaii

## Site Background

This field demonstration was conducted at the former southern and northern trap and skeet ranges on the former Naval Air Station (NAS), Barbers Point, Hawaii that was officially closed in July 1999, under the Base Realignment and Closure Act (BRAC). Both the southern and northern trap and skeet ranges have been identified as candidates for disposal under new conservation transfer legislation.

A Removal Site Evaluation (RSE) conducted in early 1999 confirmed lead and arsenic-impacted soil at the site. Lead concentrations exceeded the level for both human health risk (2,100 mg/kg) and ecological risk (385 mg/kg). Additionally, an engineering evaluation/cost analysis (EE/CA) evaluated removal action alternatives and recommended the most appropriate cleanup approach for the lead-impacted site in accordance with the property's intended reuse.

The northern and southern ranges have not been disturbed since 1950. Lead and arsenic pellets were found within 900 feet of the firing line at depths of 1 to 3 inches below ground surface. The soil at the site is shallow with coral rock underneath. Approximately 1 inch of humic or heavy organic material covers the pellets and lead contaminated soil.

## Removal Alternatives

Of the eight removal action alternatives considered, four met the preliminary screening criteria and were compared against effectiveness, implementability, and cost criteria. The most preferable alternative was excavation and placement into a previously constructed consolidated unit on the island. Surface soil excavation performed by vacuum trucks was selected as the preferred excavation method due to its less detrimental effect on natural resources and lower cost.

## Cost Effectiveness

The total cost estimate was based on a previous lead-pellet cleanup project at a USDA Forest Service site in Arizona where a vacuum truck removed contaminated soil at a rate of 500 ft<sup>2</sup>/hr or 2,000 ft<sup>2</sup>/day. Under the assumption of achieving the same removal rate, a cost of \$3,130,000 was estimated as compared to \$4,180,000 for using conventional excavation equipment such as dozers and loaders (EE/CA Former Trap and Skeet Range, App. G, December 1999). In addition to the cost-effectiveness of the vacuum technology, another advantage is that the vacuum truck would minimize the disturbance to vegetation such as native akoko plants at the southern trap and skeet range. Since the vacuum truck technology would not intrusively alter the environment compared to a conventional excavation method, it was considered to be a better remedial method.



*Figure 1. Demonstration site and the vacuum truck utilized at the field.*

## Field Demonstration and Results

In June 2000, a field demonstration took place to test the feasibility of using a vacuum truck. A demonstration site (approximately 64' by 32') was selected in a southeastern portion of the southern trap and skeet range.



*Figure 2. 4-inch hose connected to the vacuum truck.*

This one-day field trial was performed to vacuum and containerize surface soils known to contain lead contamination at in-soil concentrations up to 1,000 mg/kg. The surface soil was vacuumed through a 4-inch diameter PVC hose (Figure 1).

The demonstration goal was to achieve a 500 ft<sup>2</sup>/hr removal rate (based on the USDA Forest Service Arizona site project) to meet a cleanup goal of 385 mg/kg of lead concentration in soil. The actual removal rate achieved during the field demonstration was 115 ft<sup>2</sup>/hr. This significantly lower removal rate was attributed to site conditions and issues related to the handling of equipment. The inhibiting site conditions included: heavy vegetation, excessive organic materials on the surface soil, and the rugged and uneven surface with protruding coral rocks.

Additionally, the 4-inch vacuum hose with PVC end connected to the vacuum truck generated insufficient suction head, which caused the higher-density lead pellets to fall back (Figure 2). Furthermore, this equipment design made it difficult for field operators to maneuver.

After this field demonstration, the vacuum excavation rate was revised downward to 115 ft<sup>2</sup>/hr and a total cost estimate revised to \$3,800,000 (EE/CA Former Southern Trap and Skeet Range, App. G, November 2000).

### Lessons Learned

1. Recommended major specifications for a vacuum truck (Supersucker Industrial Vacuum Loader) that would be suitable for handling a similar task are:

- a. Vacuum pump with control panel:
    - Dresser Industries rotary lobe positive displacement type rated at 5922 CFM and 16" Hg
  - b. Collector body:
    - Minimum of 17 cu. yd. usable capacity.
    - Cylindrical body of 1/4 - inch steel with an adequate stiffening ring to accommodate a continuous full vacuum (1 ATM) or a positive pressure of 13 psig.
    - Four separators where any particulate matter remaining in the air stream would get separated and removed with 98% effectiveness.
  - c. Baghouse:
    - Acrylic coated felt media filters that remove a particulate matter one micron or larger.
    - A self-cleaning baghouse and filter media.
2. The working end of the hose should be a smaller diameter. This will create a greater velocity to prevent fall back of lead pellets. It would also allow a more maneuverable tool for field personnel.
  3. In order to achieve economically competitive removal rate compared to a conventional excavation method, recommended site conditions would be homogeneous soil conditions with less protruding rocks or organic materials. Since site conditions can cause significant impacts on effectiveness and cost of using a vacuum truck as a remedial method, conditions should be considered prior to selecting a vacuum truck technology.
  4. Although the demonstration encountered difficulties during field implementation, due to site specific conditions, the vacuum truck excavation method is economically sound, a less intrusive technology, and is a preferred method over conventional excavation when environmentally sensitive conditions are present.

*For more information, contact:*

*Naval Facilities Engineering Command,  
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258 Makalapa Dr. Suite 100  
Pearl Harbor, HI 96860  
(808) 471-9186 x255*



# Range Residue Removal and Recycling Project

## MCAS Yuma

Marine Corps Air Station (MCAS) Yuma was awarded the Secretary of the Navy's Environmental Quality Award for a Non-Industrial Installation for FY01. This achievement was due in part to the successful removal and recycling of range waste at five sites on two bombing ranges located within the Yuma Training Range Complex (YTRC) by MCAS Yuma and Southwest Division (SWDIV) contractor, Foster Wheeler Environmental Corporation (Foster Wheeler).

### Project Overview

The two bombing ranges are the Barry M. Goldwater Air Force Range in Arizona and the Chocolate Mountain Aerial Bombing and Gunnery Range in California. These ranges comprise more than 1,900 square miles of land. The bombing ranges have been used as aerial gunnery and bombing training areas since World War II. Large amounts of inert ordnance, range residue, and some unexploded ordnance (UXO) were present on both ranges.

Range residue material consisted of full-scale inert (FSI) practice bombs, bomb fins, other

practice bombs, other ordnance and explosive (OE)-related materials, target scrap, tires, and general rubbish. MCAS range-maintenance personnel stockpiled the inert ordnance and range residue at five designated sites within the YTRC. The stockpiles maintained the potential to contain ammunition, explosives, or other dangerous articles (AEDA) or propellants, energetics, or pyrotechnics (PEP). All stockpiles required inspection for these dangerous materials prior to processing.

In accordance with standards established in the Defense Demilitarization Manual, handling and disposing of range residue provided a "cradle-to-grave" accounting of the material. The Foster Wheeler Team consisted of UXO inspectors and processing technicians, with health and safety personnel and quality assurance/quality control (QA/QC) personnel providing oversight. Documentation and certification were maintained by using weight, security seal, and chain-of-custody certificates; settlement reports; and control sheets detailing all loads of range residue processed and recycled.

### Removal and Recycling Steps

The first project objective was to perform an initial inspection



*Figure 1. Demilitarization of full-scale inert practice bombs at MCAS Yuma bombing range.*

tion and characterization of the range residue and segregate it into stockpiles. The characterization was accomplished by the UXO technicians to determine if the range residue contained any hazardous or radioactive constituents. FSI practice bombs were segregated from the rest of the range residue, as was material that could have contained PEP or AEDA. MCAS Yuma station personnel performed the actions necessary to remove, transport, and dispose of all hazardous wastes (Figure 1).

The second project objective was to process and demilitarize the range residue, reinspect, and certify the processed material as non-AEDA or non-PEP-contaminated prior to shipment, and recycle the materials through authorized recycling facilities. The reinspection and certification of the range residue were integral phases to the recycling process.

The recyclable range debris was sorted by material type into six different recycling streams that included heavy and light-gauge steel, aluminum, cast iron, prepared steel, and tires. The sorted materials were transported to seven different recycling facilities for processing. Inert concrete fill found in the FSI practice bombs was left on site. Nonrecyclable, nonhazardous debris was disposed of in a Class III Landfill.

### Project Results

Over 12,500 work hours were spent on the project without accident or incident. A total of 2,786,286 pounds of range material were removed for recycling and disposal. The project established a precedent for future range residue removal and was an important factor in MCAS Yuma receiving the Secretary of the Navy's Environmental Quality Award for a Non-Industrial Installation for FY01.

*For further information, contact:*  
SWDIV  
(619) 532-4208

*Foster Wheeler*  
(619) 471-3519

## Last parcel of Glenview NAS transferred to the Village



*Figure 1. CAPT Tom Bersson, Regional Engineer Great Lakes, presents the final property transfer document to Mr. Lawrence Carlson, Village of Glenview President, as the Board of Trustees look on.*

The Village of Glenview was presented the last deed for the former Naval Air Station (NAS) at their Village Board Meeting on Tuesday, 17 September 2002. The ten acres was the final of 1,043 total acres transferred and the entire closure process is heralded as a model clean-up, disposal, and transfer project.

Many contributed to the success of this project, including Great Lakes' Environmental Director Mark Schultz, who also played a significant roll in the Village Board Meeting, and his Environmental Team at Great Lakes. Southern Division (SOUTHDIV), Naval Facilities Engineering Command was a key player in the project and recognized by the President of the Village, Mr. Lawrence Carlson.

Regional Engineer, CAPT Tom Bersson, stated that he "had the privilege of handing the deed to Mr. Carlson, on behalf of RADM Ann Rondeau, Commander Navy Region Midwest, and CAPT Paul McMahon, SOUTHDIV" (Figure 1). The Village, in turn, presented a resolution to the Navy. It stated, "the Department of the Navy fully achieved the national community reinvestment goals and the Navy base closure implementation goals at the former Glenview NAS by providing superior leadership at all levels of the chain of command, excellent technical and community assistance, and aggressive funding for planning and environmental cleanup. To wit, on this 17<sup>th</sup> day of September, 2002, the final deed for the former Glenview NAS has transferred from the Navy to the Village of Glenview. The Village of Glenview is honored to have hosted 58 years of Naval aviation and is grateful for the smooth and expeditious transition of the former Glenview NAS from military to civilian use."

# NAVFAC Workgroup Updates

Welcome to the NAVFAC Workgroup Update page. This page highlights the efforts accomplished by each of the NAVFAC workgroups to provide a consistent, effective approach to site cleanup and closeout. Workgroups have members from the Engineering Field Division and Activities (EFD/As), NAVFAC headquarters, Chief of Naval Operations (CNO), and the Naval Facilities Engineering Service Center (NFESC). For more information about these groups, contact your EFD/A member or 805-982-4847

## Administrative Record (ARMS) Workgroup

The ARMS Workgroup is meeting in November 2002 at EFA Northwest. The group will draft a petition requesting a revision to the charter to include updating the User's Guide and other products that assist the EFD/As in managing and storing their Administrative Records. The group will work with the Environmental Protection Agency (EPA), the Army, and the Air Force to offer input for the revision of OSWER Final Guidance on Administrative Records for Selecting CERCLA Response Actions, which was originally written in 1990.

## Alternative Restoration Technology Team (ARTT)

ARTT is a workgroup established to promote and implement the use of cost effective, innovative technologies and methods. The last ARTT meeting was held in conjunction with a Remedial Action Operation/Long Term Monitoring (RAO/LTM) Workgroup meeting and a Groundwater Technical Forum for Southwest Division (SWDIV). Current efforts include working more closely with the R&D community and providing feedback to NFESC on ways to improve technology transfer. The group has also developed a NAVFAC Technical Point of Contact (POC) list for Remedial Project Manager (RPM) use.

## Cost-To-Complete (CTC) Workgroup

The CTC Workgroup was formed to assist in the development of a consistent, credible application that develops

and reports budget requirements for the Navy's Installation Restoration (IR) and Base Realignment and Closure (BRAC) programs. Responsibilities include promoting sound cost estimating practices and ensuring the needs of each field office are addressed throughout the budget process. Current efforts include finalizing the Configuration Management Plan that was required to achieve system accreditation, resolving remaining user comments, discussing future model requirements and system enhancements, and formulating requirements for a formal estimating training program.

## Installation Restoration/ Geographic Information System (IR GIS)/ Data Management Workgroup

This workgroup has been established to develop and coordinate a corporate methodology using common business practices for enhancing and facilitating the use of IR data through GIS and web-based applications in a consistent and cost effective manner. The goal is to develop a database that will be used by all the EFD/As and NFESC to manage all IR Program data. The database will have applications to allow RPMs to access, share, and evaluate IR data using web-based and desktop applications, making evaluation and visualization of data easier and more cost effective. No more lugging around 7 volumes of remedial investigations to team meetings, and no more lost or unusable data when changing contractors. Currently, we are developing a standardized database structure.

## Munitions Response (MR) Workgroup

The MR Workgroup is chartered to develop and recommend MR guidance, and promote the use of best available technologies and methodologies for managing cleanup of Munitions and Explosives of Concern (MEC) and Munitions Constituents (MC). The MR Workgroup met recently to get updates on the MR Program from NAVFAC Headquarters and CNO. RPMs also exchanged project information on what was working well and where improvements could be made at the dozen MEC cleanup projects across NAVFAC. These projects vary in size from the very large efforts at Adak Island, Kaho'olawe Island Reserve, and Vieques Island to smaller ones across the country. The Workgroup also heard from Civil Engineer Corps Officer School (CECOS), Naval Explosive Ordnance Disposal Technology Division (NAVEODTECHDIV), NFESC, and Naval Ordnance Safety & Security Activity (NOSSA) on what each agency is currently doing toward meeting the needs of the RPMs executing MR Program.

## Risk Assessment Workgroup (RAW)

The RAW continues to work on completing several guidance documents. The Guidance for Environmental Background Analysis, Volume 1: Soils is complete and can be found at: [http://enviro.nfesc.navy.mil/erb/erb\\_a/restoration/methodologies/bg\\_soil\\_guide.pdf](http://enviro.nfesc.navy.mil/erb/erb_a/restoration/methodologies/bg_soil_guide.pdf). Volume 2: Sediments is expected to be completed by 31 Dec 2002. The Implementation Guide for Assessing



and Managing Contaminated Sediments at Navy Sites is scheduled for completion in November 2002. The group continues to work with EPA to complete the EPA Guidance for Monitoring at Hazardous Waste Sites: Framework for Monitoring Plan Development and Implementation. When the EPA Guide is released, the group will develop Navy-specific guidance for its implementation. Lastly, the group has nearly completed Standard Operating Procedures for Conducting Lead Human Health Risk Assessments and is working on a Polychlorinated Biphenyls (PCB) issue paper that will address issues associated with analysis for total PCBs vs. congeners vs. homologues.

#### Remedial Action Operation/Long Term Monitoring (RAO/LTM) Team

The RAO/LTM Workgroup focuses on implementation of RAO/LTM optimization practices at IR sites. Currently, the Workgroup is focusing on Department of the Navy (DON) pump and treat (P&T) systems. The Workgroup prepared a questionnaire to collect operational and cost information on all DON P&T systems as well as information about any optimization efforts for these systems. The questionnaires were distributed throughout the EFD/As via the respective IR Managers. NFESC will compile the information from the questionnaires for review by the Workgroup. The findings from the questionnaires and some general optimization recommendations will be presented to the IR Managers for approval and implementation.

The Workgroup also recently revised their charter to include providing support for developing site closeout guidance and policies, and developing strategies and other actions to enhance implementation of RAO/LTM optimization at IR sites.

## Interstate Technology and Regulatory Council (ITRC) Training



The Interstate Technology and Regulatory Council (ITRC), in conjunction with the U.S. Environmental Protection Agency's (U.S. EPA's) Technology Innovation Office, offers a wide variety of training events via the Internet on innovative environmental methods and technologies. The trainings are targeted at members of the environmental community, including regulators, responsible parties, consultants, and stakeholders. Training topics include natural attenuation, in situ chemical oxidation, in situ bioremediation, unexploded ordnance, phytotechnologies, diffusion samplers, and more.

The ITRC Technical and Regulatory Guidance Documents that form the basis of training materials are available for download from the ITRC website at <http://www.itrcweb.org>. The comprehensive 2002 ITRC Internet Training Schedule is available on the website - course registration typically opens 4 to 6 weeks in advance.

*For additional information, contact:*

*(402) 325-9615*

# Removal Action underway at former NAS Alameda

A time-critical removal action (TCRA) is currently under way at the former Naval Air Station (NAS) Alameda, Alameda Point, California. By implementing the TCRA, the Navy will mitigate potential risks of exposure to near surface soil within a U. S. Coast Guard housing area, known as Installation Restoration (IR) Site 25.

IR Site 25 comprises approximately 42 acres, including a 31-acre Coast Guard housing area (the initial TCRA area) and an 11-acre Estuary Park site (the extended TCRA area). The TCRA on the initial site has been completed, and TCRA activities have now been expanded to the Estuary Park. U.S. Coast Guard employees and their families are currently occupying 21 multiple-unit housing structures within the initial TCRA boundary under lease from the Navy. The extended TCRA area encompasses the entire Estuary Park site. This extended area includes a recreational park, the Coast Guard Housing Office, and the Coast Guard Housing Maintenance Office.

NAS Alameda was originally a peninsula and was detached from the mainland in 1902 when a channel linking San Leandro Bay to San Francisco Bay was cut. Dredge materials from San Francisco Bay, Seaplane Lagoon, and Oakland Inner Harbor were used to fill in natural tidelands, marshlands, and sloughs which created the majority of the land where the former NAS Alameda and IR Site 25 are located. During the course of environmental

analyses revealed the presence of polynuclear aromatic hydrocarbons (PAHs) in soil. The source of the PAHs is believed to be the fill material used to create additional land for Alameda Island. These PAHs are believed to have originated from industrial activities in adjacent areas and are ubiquitous in the fill material.

The TCRA at the initial site required cooperation with the housing residents and adjacent communities, the U.S. Coast Guard, and the regulatory agencies. The Navy and its contractor, Foster Wheeler Environmental Corporation (Foster Wheeler), encountered significant challenges when using heavy earth-moving equipment for excavation in an occupied housing area populated with children (Figure 1). The Navy has conducted a number of community

meetings to inform the residents and other interested parties of forthcoming activities and progress of the TCRA. The Navy also responded to community concerns to minimize any impact or inconvenience the TCRA operations might cause to the housing residents.

To minimize impact on the daily lives of the local residents, the housing area was divided into small subareas, and construction work was approached in a systematic way by timing, sizing, and sequencing the scope of the activities. The basic approach in the housing area was that each specific work area would be excavated and then backfilled with clean imported soil within the same day.

Soil was removed to 2 feet below ground surface, placed into trucks, and transported to a temporary stockpile to later be transported off site for disposal



*Figure 1. Excavation activities behind housing area at IR Site 25, NAS Alameda.*

at an approved landfill. The imported backfill and topsoil were analyzed for arsenic, polychlorinated biphenyls (PCB), and PAHs before being placed in the excavation. The backfilled areas were covered with topsoil and sod following backfill and compaction. The excavation, backfilling, and sod placement in the initial TCRA area was completed in April 2002. Approximately 51,000 tons of contaminated soil was removed.

In March 2002, the Navy finalized characterization of the extended TCRA area (Estuary Park) and determined that removal of the upper 2 feet of soil in this area was also necessary. The Navy delineated the boundaries of the extended TCRA area and authorized Foster Wheeler to proceed with the excavation work. The TCRA of this area will generate approximately 56,000 tons of contaminated soil.

The extended TCRA project area is not occupied by housing structures. As a result, the entire excavation area has been fenced, and large excavators have been mobilized to increase the rate of soil removal. In preparation for excavation, Foster Wheeler has removed the park recreational facilities, trees, and a jogging path. The excavation of contaminated soil in the extended TCRA area was completed July 2002. At completion, selected facilities in Estuary Park will be restored, including the baseball and soccer fields, sand volleyball court, a 3,200-foot-long jogging path, playgrounds, and an irrigation system. Completion of the entire TCRA project is scheduled for 31 October 2002.

*For more information, contact:*

*Naval Facilities Engineering Command,  
Southwest Division (SWDIV)  
(619) 532-0952*

## Coming Soon: Web-based survey on DNAPL Remediation

13 Nov 02 - 31 Jan 03

We are asking for the aid of Naval RPMs in helping us to compile site-specific information through a web-based survey. The survey will be made available to non-Department of Defense (non-DOD) RPMs, site owners, technology vendors, environmental consultants, and other environmental professionals to enter relevant information. The web-based survey will target information from sites at which DNAPL remediation has been attempted. The site information collected by the survey will include specifics such as the site conditions (e.g., geology, hydrogeology, etc.), source conditions (e.g., DNAPL mass, areal distribution, composition, etc.), cost and duration of remediation, other factors impacting technology effectiveness (e.g., remedial goals, surface structure and/or water interference, etc.), and effectiveness of remediation. The approximate time required to complete the survey per site is 30 minutes. Survey participants will be able to access and modify their answers for 60 days after the initial entry. Access to the survey will be available 13 November 2002 to 31 January 2003.

The Naval Facilities Engineering Service Center (NFESC), in partnership with GeoSyntec Consultants, is currently compiling information on various dense, non-aqueous phase liquid (DNAPL) source removal technologies, and is requesting assistance from the Naval Remedial Project Managers (RPMs). The compiled information will be used to develop a decision matrix that compares and evaluates various DNAPL removal technologies. The technology comparison will be presented in terms of technology performance and cost, remedial goals, and site and DNAPL source conditions. The final report will be made available to Naval RPMs, and

will contain information on technology theory and application, an evaluation of technology performance and development status, and an indication of remedial costs. An outline of the impact of both DNAPL source and site conditions on technology effectiveness, cost, and technical practicability/impracticability, will also be presented. The report will contain a contact list of technology experts and vendors for easy reference.

We foresee many benefits to the Navy from compilation of this information, including the following:

- Simplification and improvement of the Navy's DNAPL source remediation technology selection process through the development of a decision matrix;
- Provision of defensible arguments for technology selection, as well as defense for no action (where appropriate) for source remediation;
- Reduction of Naval expenditures on remediation by improving the technology selection process;
- Provision with information to enable the Navy to better focus future research/funding directions; and
- Provision of a listing of names of people/companies that have knowledge/proficiency in each technology for future reference.

*For details on how to access the survey, contact:*

*NFESC, ESC 411  
1100 23rd Ave  
Port Hueneme, CA 93043  
(805) 982-1616*



## Reminder

Get a head start on your article for upcoming issues of RPM News.

Please provide a complete current and/or updated article from a previous story. A complete article includes text, photographs, figures, captions, etc.. Because EFD/As sometimes submit multiple articles, please send a separate email for each article. Tentative deadlines for each upcoming issue of RPM News are provided below.



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